

**We claim:**

1. A method for determining whether a subject has or is predisposed to developing a disease or condition that is associated with an IL-1 inflammatory haplotype comprising  
5 detecting an IL-1 allele as shown in any of Figures 1, 2A, 2B, 7A or 7B.
2. The method of claim 1, wherein at least two alleles contained in any of Figures 1, 2A, 2B, 7A or 7B are detected.
- 10 3. The method of claim 2, wherein the two alleles have a linkage disequilibrium value (D') of at least 0.5.
4. The method of claim 2, wherein the two alleles have a linkage disequilibrium value (D') of at least 0.6.  
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5. The method of claim 2, wherein the two alleles have a linkage disequilibrium value (D') of at least 0.6.
6. The method of claim 2, wherein the two alleles have a linkage disequilibrium value  
20 (D') of at least 0.7.
7. The method of claim 2, wherein the two alleles have a linkage disequilibrium value (D') of at least 0.8.
- 25 8. The method of claim 2, wherein the two alleles have a linkage disequilibrium value (D') of at least 0.9.
9. A method for determining whether a subject has or is predisposed to developing a disease or condition that is associated with an IL-1 inflammatory haplotype phenotype  
30 comprising detecting a characteristic pattern of an IL-1 haplotype as shown in any of Figures 3A, 3B, 4A, 4B, 5A, 5B, 6A, or 6B.

10. The method of claim 9, wherein the IL-1 haplotype comprises a hap 1 pattern as shown in Figures 3A and 3B.

11. The method of claim 9, comprising detecting the three alleles of the hap1 pattern  
5 T\_T\_C/2\_2\_1.

12. The method of claim 9, wherein the IL-1 haplotype comprises a hap 2 pattern as shown in Figures 4A and 4B.

10 13. The method of claim 9, comprising detecting the three alleles of the hap2 pattern G\_C\_T/ 1\_1\_2.

14. The method of claim 9, wherein the IL-1 haplotype comprises a hap 3 pattern as shown in Figures 5A and 5B.

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15. The method of claim 9, comprising detecting the three alleles of the hap3 pattern G\_C\_C/ 1\_1\_1.

16. The method of claim 9, wherein the IL-1 haplotype comprises a hap 4 pattern as  
20 shown in Figures 6A and 6B.

17. The method of claim 9, comprising detecting the three alleles of the hap 4 pattern C\_C\_C/ 1\_1\_1.

25 18. An IL-1 polynucleotide sequence for detecting an IL-1 polymorphism comprising a novel nucleic acid of at least 12 contiguous nucleotides of an SNP sequence shown in any of Figures 8, 9, 10A, 10B or 11, or its complement.

19. The IL-1 polynucleotide sequence of claim 18, wherein the novel nucleic acid  
30 sequence comprises at least 14 contiguous nucleotides of an SNP sequence shown in any of Figures 8, 9, 10A, 10B or 11, or its complement.

20. The IL-1 polynucleotide sequence of claim 18, wherein the novel nucleic acid sequence comprises at least 17 contiguous nucleotides of an SNP sequence shown in any of Figures 8, 9, 10A, 10B or 11, or its complement.

5 21. The IL-1 polynucleotide sequence of any of claims 18, 19 or 20, wherein the SNP sequence is an IL-1A SNP selected from the group consisting of: IL-1A SNP #1; IL-1A SNP # 2; IL-1A SNP # 3; IL-1A SNP #4; IL-1A SNP # 9; IL-1A SNP #10; IL-1A SNP #11; IL-1A SNP #14; IL-1A SNP #15; IL-1A SNP #16; IL-1A SNP #19; IL-1A SNP #24; IL-1A SNP #25 IL-1A SNP #; IL-1A SNP #30; IL-1A SNP #31; IL-1A SNP #33; and IL-  
10 1A SNP #34.

22. The IL-1 polynucleotide sequence of any of claims 18, 19 or 20, wherein the SNP sequence is an IL-1B SNP selected from the group consisting of: IL-1B SNP #1; IL-1B SNP # 2; IL-1B SNP # 3; IL-1B SNP #4; IL-1B SNP #5; IL-1B SNP # 6; IL-1B SNP #7;  
15 IL-1B SNP #8; IL-1B SNP # 9; IL-1B SNP #17; IL-1B SNP #19; IL-1B SNP #35; and IL-1B SNP #38.

23. The IL-1 polynucleotide sequence of any of claims 18, 19 or 20, wherein the SNP sequence is an IL-1RNic SNP selected from the group consisting of: IL-1RNic SNP #14;  
20 IL-1RNic SNP #14; IL-1RNic SNP #18; IL-1RNic SNP #21; IL-1RNic SNP #22; IL-1RNic SNP #26; IL-1RNic SNP #; 29; IL-1RNic SNP #30; IL-1RNic SNP #; 31; IL-1RNic SNP #32; IL-1RNic SNP #33; IL-1RNic SNP #34; IL-1RNic SNP #35; IL-1RNic SNP #36; IL-1RNic SNP #37; IL-1RNic SNP #38; IL-1RNic SNP #40; IL-1RNic SNP #42; 43; IL-1RNic SNP #65; IL-1RNic SNP #67; IL-1RNic SNP #; 68; and IL-1RNic SNP #82.

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24. The IL-1 polynucleotide sequence of any of claims 18, 19 or 20, wherein the SNP sequence is an IL-1RNsec SNP selected from the group consisting of: IL-1RNsec SNP #67; IL-1RNsec SNP #68; IL-1RNsec SNP #82; and IL-1RNsec SNP #93.

30 25. A kit for IL-1 genotyping comprising at least two polynucleotides of any of claims 18, 19, or 20.

26. A kit for IL-1 genotyping comprising at least two polynucleotides of at least 12 contiguous nucleotides selected from the group consisting of: IL-1A SNP #1; IL-1A SNP # 2; IL-1A SNP # 3; IL-1A SNP #4; IL-1A SNP # 9; IL-1A SNP #10; IL-1A SNP #11; IL-1A SNP #14; IL-1A SNP #15; IL-1A SNP #16; IL-1A SNP #19; IL-1A SNP #24; IL-1A SNP #25 IL-1A SNP #; IL-1A SNP #30; IL-1A SNP #31; IL-1A SNP #33; IL-1A SNP #34; IL-1B SNP #1; IL-1B SNP # 2; IL-1B SNP # 3; IL-1B SNP #4; IL-1B SNP #5; IL-1B SNP # 6; IL-1B SNP #7; IL-1B SNP #8; IL-1B SNP # 9; IL-1B SNP #17; IL-1B SNP #19; IL-1B SNP #35; IL-1B SNP #38; IL-1RNic SNP #14; IL-1RNic SNP #14; IL-1RNic SNP #18; IL-1RNic SNP #21; IL-1RNic SNP #22; IL-1RNic SNP #26; IL-1RNic SNP #; 29; IL-1RNic SNP #30; IL-1RNic SNP #; 31; IL-1RNic SNP #32; IL-1RNic SNP #33; IL-1RNic SNP #34; IL-1RNic SNP #35; IL-1RNic SNP #36; IL-1RNic SNP #37; IL-1RNic SNP #38; IL-1RNic SNP #40; IL-1RNic SNP #42; 43; IL-1RNic SNP #65; IL-1RNic SNP #67; IL-1RNic SNP #; 68; IL-1RNic SNP #82; IL-1RNsec SNP #67; IL-1RNsec SNP #68; IL-1RNsec SNP #82; and IL-1RNsec SNP #93.

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27. A method for selecting an appropriate therapeutic for an individual that has or is predisposed to developing a disease or disorder that is associated with an IL-1 polymorphism comprising the steps of:

detecting an IL-1 inflammatory haplotype by detecting an IL-1 allele as shown in any of Figures 1, 2A, 2B, 7A or 7B; and  
selecting a therapeutic that compensates for the IL-1 inflammatory haplotype detected.

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28. The method of claim 27, wherein at least two alleles contained in any of Figures 1, 2A, 2B, 7A or 7B are detected.

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29. The method of claim 28, wherein the two alleles have a linkage disequilibrium value (D') of at least 0.5.

30. The method of claim 28, wherein the two alleles have a linkage disequilibrium value (D') of at least 0.6.

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31. The method of claim 28, wherein the two alleles have a linkage disequilibrium value (D') of at least 0.6.

32. The method of claim 28, wherein the two alleles have a linkage disequilibrium value (D') of at least 0.7.

5 33. The method of claim 28, wherein the two alleles have a linkage disequilibrium value (D') of at least 0.8.

34. The method of claim 28, wherein the two alleles have a linkage disequilibrium value (D') of at least 0.9.

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35. The method of claim 27 comprising detecting a hap1 IL-1 haplotype.

36. A method for determining whether a particular therapeutic is effective in treating an individual with an inflammatory disease phenotype comprising

15 detecting an IL-1 haplotype by detecting an IL-1 allele as shown in any of Figures 1, 2A, 2B, 7A or 7B;

detecting an inflammatory phenotype in the individual;

treating the individual with the therapeutic; and

determining whether the inflammatory phenotype in the individual is diminished or

20 alleviated by the therapeutic

wherein, if the individual's inflammatory phenotype is diminished or alleviated by the therapeutic, then the therapeutic is effective in treating an individual with the IL-1 haplotype detected.

25 37. The method of claim 36, wherein the therapeutic is a nutraceutical.

38. The method of claim 36 or 37, wherein the IL-1 haplotype is selected from the group consisting of: hap1, hap2, hap3 and hap4.

30 39. The method of claim 38, wherein at least one IL-1 allele selected from the group consisting of: IL-1A SNP #1; IL-1A SNP # 2; IL-1A SNP # 3; IL-1A SNP #4; IL-1A SNP # 9; IL-1A SNP #10; IL-1A SNP #11; IL-1A SNP #14; IL-1A SNP #15; IL-1A SNP #16; IL-1A SNP #19; IL-1A SNP #24; IL-1A SNP #25 IL-1A SNP #; IL-1A SNP #30; IL-1A

SNP #31; IL-1A SNP #33; and IL-1A SNP #34; IL-1B SNP #1; IL-1B SNP # 2; IL-1B  
 SNP # 3; IL-1B SNP #4; IL-1B SNP #5; IL-1B SNP # 6; IL-1B SNP #7; IL-1B SNP #8;  
 IL-1B SNP # 9; IL-1B SNP #17; IL-1B SNP #19; IL-1B SNP #35; and IL-1B SNP #38;  
 IL-1RNic SNP #14; IL-1RNic SNP #14; IL-1RNic SNP #18; IL-1RNic SNP #21; IL-1RNic  
 5 SNP #22; IL-1RNic SNP #26; IL-1RNic SNP #, 29; IL-1RNic SNP #30; IL-1RNic SNP #,  
 31; IL-1RNic SNP #32; IL-1RNic SNP #33; IL-1RNic SNP #34; IL-1RNic SNP #35; IL-  
 1RNic SNP #36; IL-1RNic SNP #37; IL-1RNic SNP #38; IL-1RNic SNP #40; IL-1RNic  
 SNP #42; 43; IL-1RNic SNP #65; IL-1RNic SNP #67; IL-1RNic SNP #, 68; and IL-1RNic  
 SNP #82; IL-1RNsec SNP #67; IL-1RNsec SNP #68; IL-1RNsec SNP #82; and IL-  
 10 1RNsec SNP #93; IL-1A SNP #1; IL-1A SNP # 2; IL-1A SNP # 3; IL-1A SNP #4; IL-1A  
 SNP # 9; IL-1A SNP #10; IL-1A SNP #11; IL-1A SNP #14; IL-1A SNP #15; IL-1A SNP  
 #16; IL-1A SNP #19; IL-1A SNP #24; IL-1A SNP #25 IL-1A SNP #, IL-1A SNP #30; IL-  
 1A SNP #31; IL-1A SNP #33; IL-1A SNP #34; IL-1B SNP #1; IL-1B SNP # 2; IL-1B SNP  
 # 3; IL-1B SNP #4; IL-1B SNP #5; IL-1B SNP # 6; IL-1B SNP #7; IL-1B SNP #8; IL-  
 15 1B SNP # 9; IL-1B SNP #17; IL-1B SNP #19; IL-1B SNP #35; IL-1B SNP #38; IL-1RNic  
 SNP #14; IL-1RNic SNP #14; IL-1RNic SNP #18; IL-1RNic SNP #21; IL-1RNic SNP #22;  
 IL-1RNic SNP #26; IL-1RNic SNP #, 29; IL-1RNic SNP #30; IL-1RNic SNP #, 31; IL-  
 1RNic SNP #32; IL-1RNic SNP #33; IL-1RNic SNP #34; IL-1RNic SNP #35; IL-1RNic  
 SNP #36; IL-1RNic SNP #37; IL-1RNic SNP #38; IL-1RNic SNP #40; IL-1RNic SNP #42;  
 20 43; IL-1RNic SNP #65; IL-1RNic SNP #67; IL-1RNic SNP #, 68; IL-1RNic SNP #82; IL-  
 1RNsec SNP #67; IL-1RNsec SNP #68; IL-1RNsec SNP #82; and IL-1RNsec SNP #93 is  
 detected.